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Inside Tesla's Model 3 Factory, Where Safety Violations Keep Rising



Alan Ohnsman Forbes Staff

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Tesla's 5.3-million-square-foot plant in Fremont, California, has among the most workers of any U.S. auto plant—more than 15,000 full-time and contract employees labored alongside dozens of acrobatic red Kuka

robots last year, assembling about 254,000 sleek electric Teslas. Ahead of the launch of the Model 3 sedan, CEO Elon Musk envisioned creating the world's most automated assembly process, describing an "alien dreadnought" that would run rings around more conventional Toyota or Ford plants.



Laurie Shelby, Tesla's vice president of environment, health and safety, MATT KANG FOR FORBES

It hasn't worked out that way. Instead of being a wonder of 21st-century automation, the assembly lines that produce Tesla's Model 3s and \$79,000-and-up Model S sedans and X SUVs rely as heavily on human workers as

ever. Now, [as it hopes its newly announced \\$35,000 version of the Model 3](#) will boost demand, the factory is grappling with a more dubious claim to fame: It has been the target of more investigations into workplace safety and has incurred more fines than its rivals' main U.S. auto plants in the past half decade.

A review by *Forbes* found 24 investigations by California Occupational Safety and Health Administration inspectors from 2014 to 2018, resulting in fines for 54 violations. These include new penalties that haven't yet hit the national

online OSHA database, and they nearly double Tesla's fines over the last five years, to \$236,730. They include one of the automaker's biggest fines, assessed after a worker's glove was caught in a torque gun, severing a finger tip, according to the state safety regulator.

By comparison, Nissan's plant in Smyrna, Tennessee, which employs about 8,000 workers, was the subject of eight investigations and received just five violations in the same time period. And Toyota's plant in Georgetown, Kentucky, which also employs about 8,000 workers, was the subject of 13 investigations, resulting in four violations. In California, anyone can call in a probe over safety; many don't result in fines, but some produce multiple citations. Tesla has contested most of the Cal/OSHA fines with California regulators.

Even accounting for its larger workforce, the violations and fines at the Tesla factory, in a commuter suburb of San Francisco, dwarfed the total for 10 big U.S. auto plants, including those of BMW, Ford and GM. They employ about 58,000 workers altogether and incurred just 18 OSHA violations in the past five years with less than \$90,000 in fines. While reports of [gruesome worker injuries](#) have dogged Tesla's auto plant for years (often promoted by groups affiliated with the United Auto Workers, which seeks to get the plant back to the union status it had when it was operated by General Motors and, later, Toyota),

the number of Cal/OSHA investigations and fines puts the depth of investigators' concerns—and the challenges facing new management that was brought in to overhaul its safety problems in late 2017—in a new light.

Safety Slap: Tesla Gets Fined More Than Other Auto Plants

Tesla's cumulative fines for safety violations surpass that of 10 major U.S. auto plants over the past five years, all of which currently produce more vehicles than the Fremont factory.

Company	Plant Location	Employees	Production Capacity ¹	OSHA Violations 2014–18	OSHA Fines
BMW	Spartanburg, SC	11,000	480,000	0	\$0
Nissan	Smyrna, TN	8,000	640,000	5	\$33,700
Toyota	Georgetown, KY	8,000	550,000	4	\$0
Ford	Kansas City, MO	7,320	490,000	4	\$29,918
Honda	Marysville, OH	4,200	440,000	0	\$0
GM	Arlington, TX	4,125	350,000	0	\$0
Hyundai	Montgomery, AL	3,000	399,500	0	\$0
Subaru	Lafayette, IN	5,700	340,000	0	\$0
Kia	West Point, GA	2,700	340,000	3	\$9,180
Mercedes-Benz	Tuscaloosa, AL	3,800	300,000	2	\$16,741
		57,845	4,329,500	18	\$89,539
Tesla	Fremont, CA	15,000²	500,000³	54	\$236,730

¹Estimated. ²Employment figure for Fremont is as of December, 31, 2018 and includes contract workers. ³Tesla's actual production in 2018 was approximately 254,000.

U.S. OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION, COMPANY INFORMATION, FORBES DATA

The reported injuries suggest a sometimes chaotic workspace: Safety regulators just assessed a \$26,075 fine after a contract worker had his pelvic bone fractured after being hit by a forklift in the recycling area, according to Frank Polizzi, a spokesman for Cal/OSHA. In an August 2018 incident, a Tesla's rear hatch door violently dropped onto the back of an employee as he was caulking the trunk, according to a report by the Center for Investigative Reporting. The worker injured in that accident later [claimed he was denied adequate medical care](#) by Tesla's contracted medical clinic. Whistleblower reports

from former workers who claimed the safety team [underreported injuries](#) threaten to strengthen a push for unionization at Fremont, which Musk opposes, and to increase legal and other expenses at a time when the company is struggling to lower costs to reach consistent profitability.

Tesla has decried claims that the company has covered up workplace injuries, saying they were fostered by an unnamed "[extremist organization](#)." But investigators keep charging Tesla with violations. Fines range from \$425 for failing to report injuries within a required time period to thousands of dollars for hazardous conditions that resulted in serious injuries. Tesla's tent-like structure to house an additional production line for the Model 3, hastily erected last summer, resulted in six fines totaling \$29,365.

"I think the state of California is more stringent" than any other U.S. state, said Tesla safety chief Laurie Shelby, an industrial safety expert who Tesla hired from Alcoa in late 2017, when asked about the number of fines the Fremont plant had received compared with those of other auto factories. "I don't want fingertip amputations," she says. "Injuries are going to happen, because we have great people who are going to get the job done. We just have to make sure our controls are in place."

Shelby has a lot of work ahead of her.

Last year, the annual rate of serious injury—defined as an injury that requires an employee to take time off to recover—at Tesla’s plant was 4.9 days per 100 workers, a 5% improvement from 2017 but still above the auto industry average of 4.2 days per 100 workers. Including all injuries, Fremont averaged 6.2 per 100 workers last year, unchanged from 2017, based on data Tesla filed with the Department of Labor. That was identical to the overall auto industry rate in 2017.

Reports of strains on Tesla’s workers coincided with Musk’s relentless push in 2018 to produce more Model 3s, the relatively affordable sedan whose anticipated sales volume underpins Tesla’s \$55 billion market cap. The intense ramp-up that Tesla undertook from late 2017 through the first half of 2018 to fulfill its goal to make 5,000 Model 3s a week famously prompted Musk to log [120-hour workweeks](#) and sleep on a factory sofa.

For many workers building the Model 3, that meant frequent 10-hour shifts and weekend work. Cal/OSHA’s scrutiny of Tesla in 2018 reflects this intensity, as the agency opened eight separate reviews and has issued 18 violations, the most in a single year in the company’s history.

Shelby has set out to improve its safety performance by introducing standards similar to those of century-old manufacturing and auto companies, industries Musk has aimed to disrupt. She built a 60-person safety team to monitor

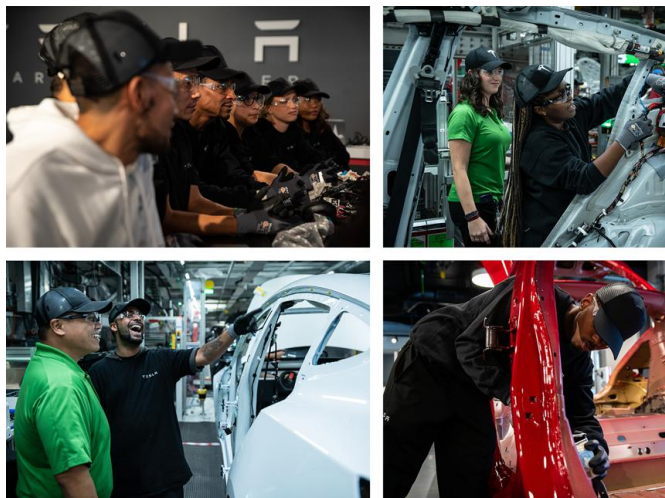
Fremont's three assembly lines, began requiring longtime managers to report every safety issue, not just those that result in injuries, and has urged employees to identify potential hazards.

"We're not perfect," Shelby said during a recent interview at the plant. "We make mistakes. We're human. But our goal is to learn and to move fast."

She's been aided by Keith Champion, who spent about 18 years at Toyota and has been overhauling training for new hires to help reduce injuries and boost efficiency. Four years ago, new Tesla workers got much of their training on the job.

"I don't remember any kind of training," said Alan Ochoa, a former member of the plant's Model S and X line quality control team, who was among 800 Fremont employees fired in January, when the company laid off about 3,000 people.

"When I started, if they found one thing you were really good at, you were going to be there for 12 hours a day, five, six, seven days a week," Ochoa said. The 31-year-old resident of Mountain House, California, ended up with carpal tunnel syndrome



Green shirted staff are athletic trainers who assist workers in Tesla's Fremont, California factory with their posture and stretching to help reduce repetitive stress injuries. MATT KANG FOR FORBES

in both hands, which led to two surgeries and a permanent work restriction to avoid lifting anything heavier than 55 pounds.

Days of training on how to operate the heavy machines without getting hurt, which experts say is key to preventing many assembly line injuries, have helped improved safety—but Tesla’s routine still lags peers like Toyota, reflecting Musk’s early vision of focusing on robotics rather than human workers to build his all-electric cars. This has forced Tesla to play catch-up to an industry it’s been accustomed to leading.

“Generally, the level of focus on safety is through the roof these days,” said Jeff Liker, an engineering professor at the University of Michigan.

New hires at Toyota’s plant in Georgetown, Kentucky, typically undergo a four-week orientation and training regimen, though it can go longer, as they’re gradually taught individual assembly-line tasks, plant spokesman Rick Hesterberg said.

Tesla spends about half that time, according to training chief Champion, who says the program continues to evolve.

Shelby, in addition to building up her safety team and implementing more aggressive reporting standards, has introduced some less traditional auto industry approaches, such as bringing in

athletic trainers and massage tables while encouraging stretching, both before shifts and during lulls, to help reduce strain and repetitive motion injuries.

“Everything started with ‘We’re going to automate so our injury rates can go really down because we’re going to be automated.’ Well, we’re not automated. We rely on humans to do a lot of the work,” Shelby said.

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Alan Ohnsman

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